

INDEX

A

Advanced base functional components, 5-8 to 5-11

Airfields, 3-15 to 3-19

airfield surveys, 10-25 to 10-26

surfaces, 3-17 to 3-19

terminology, 3-15 to 3-17

Area computations, 7-14 to 7-24

area by trapezoidal rule, 7-19 to 7-20

coordinate method, 7-17 to 7-19

counting squares, 7-20

DMD method, 7-15 to 7-17

double parallel distance method, 7-17

parcels that include curves, 7-21 to 7-24

planimeter method, 7-20 to 7-21

Astronomy, 15-2 to 15-14

astronomical tables, 15-7 to 15-10

astronomical triangle, 15-7

celestial system, 15-4

declination, 15-11, 15-18

horizon system, 15-4 to 15-7

local hour angle, 15-13

meridian angle, 15-14

polar distance, 15-14

terrestrial system, 15-2 to 15-4

time diagram, 15-11 to 15-13

zenith distance, 1-14

B

Barometric leveling, 7-1

Beaman stadia arc, 8-7 to 8-8

Bearing tests, 13-10 to 13-15

CBR test, 13-11 to 13-15

penetration test, 13-13 to 13-15

Bituminous-pavement materials, 13-35 to 13-39

aggregate tests, 13-45 to 13-48

Bituminous cements, 13-35 to 13-39

asphalts, 13-36, 13-41

characteristics, 13-39 to 13-41

cutbacks, 13-36 to 13-38, 13-41

emulsions, 13-38, 13-42

field identification, 13-41 to 13-42

laboratory tests, 13-42 to 13-45

road tars, 13-38 to 13-39, 13-42

Bituminous mix design, 13-48 to 13-51, 17-10 to 17-22

cold-mix pavement test, 17-21 to 17-22

density and voids determination, 13-49

job-mix formula, 17-21

Marshall method, 17-11 to 17-21

procedures, 17-11

stability and flow determination, 13-49 to 13-50

surface area method, 17-22

Bituminous stabilization, 18-7 to 18-8

mix design, 18-8

soil gradation, 18-7

types of bitumen, 18-8

Bridge construction, 1-1 to 1-5

abutments, 2-1

bents, 1-3

flooring, 1-4

piers, 1-4

stringers, 1-4

C

Cement identification tests, 13-20

Cement types, 13-19

Chain of polygons, 15-25

- Chain of quadrilaterals, 15-26
 - adjustment, 15-35 to 15-37
- Chain of single triangles, 15-25
 - adjustment, 15-34 to 15-35
- Checking drawings, 4-10 to 4-12, 14-5
- Coefficient of curvature, 16-14
- Coefficient of uniformity, 16-13 to 16-14
- Compaction test, 13-1 to 13-5
- Compactive effort, 13-1
- Computation mistakes, 7-27
 - identifying computation mistakes, 7-27 to 7-29
- Concrete admixtures, 13-27 to 13-28
- Concrete aggregate, 13-21 to 13-27
 - color test for organic matter, 13-24
 - properties, 13-21 to 13-22
 - tests, 13-22 to 13-27
- Concrete composition, 13-19 to 13-27
- Concrete curing, 13-28
- Concrete design 17-1 to 17-10
 - absolute volume method, 17-5 to 17-8
 - aggregate, 17-2
 - air entrainment, 17-2
 - materials estimate, 17-9 to 17-10
 - mix proportions, 17-1 to 17-3
 - moisture adjustment, 17-8 to 17-9
 - trial batch method, 17-3 to 17-5
 - water-cement ratio, 17-1
- Concrete tests, 13-29 to 13-35
 - air-content test, 13-29
 - compressive strength, 13-30 to 13-32
 - flexural-strength test, 13-32 to 13-33
 - rebound method 13-34
 - slump test, 13-29
- Construction surveys, 10-14 to 10-23
 - as-built surveys, 10-14
 - culvert and bridge layout, 10-15 to 10-19

- Construction surveys-Continued
 - cut sheets, 10-22 to 10-23
 - sewer stakeout, 10-19 to 10-21
 - underground electrical layout, 10-21 to 10-22

- Contour lines, 8-12
 - characteristics, 8-16 to 8-20
 - control points, 8-14
 - cross profiles, 8-15
 - grid coordinate system, 8-14
 - interpolating contour lines, 8-22 to 8-23
 - map scales, 8-20
 - tracing contours, 8-13
- Cross sections, 3-7 to 3-10

D

- Density test, 13-5 to 13-10, 18-6
 - nuclear moisture-density meter, 13-8 to 13-10
 - sand-displacement method, 13-5 to 13-8
- Distillation test, 13-43
- Drafting room layout, 14-4
- Drainage systems, 3-10 to 3-13
 - culverts, 3-13
 - diversion ditches, 3-13
 - interceptor ditches, 3-13
 - roadway ditches, 3-11 to 3-13
- Drawing divisions, 4-1 to 4-4
 - civil, 4-1
 - electrical, 4-3
 - mechanical, 4-2
- Drawing filing system, 14-4

E

- Earthwork computations, 10-7 to 10-12
 - area 10-7 to 10-10
 - volume, 10-10 to 10-12
- Editing drawings, 4-10 to 4-12

Electrical power system, 2-1 to 2-14

- control and protection devices, 2-5
- distribution system, 2-2 to 2-5
- distribution system drawings, 2-11 to 2-14
- poles and guys, 2-6 to 2-9
- transformers, 2-4 to 2-5
- transmission system, 2-2

Electronic distance-measuring equipment, 12-1 to 12-5

- light wave instruments, 12-1
- microwave instruments, 12-1
- slope distance reduction, 12-3 to 12-5

Electronic positioning systems, 12-5

Engineering division, 14-3 to 14-13

- drafting and reproduction section, 14-3 to 14-8
- field engineering section, 14-8 to 14-11
- materials testing section, 14-11 to 14-13

Engineering technical library, 14-5

F

Fasteners, 1-14 to 1-16

- driftpins, 1-15
- shear plates, 1-15
- split rings, 1-15
- timber fasteners and connectors, 1-14 to 1-16
- toothed rings, 1-16

Fineness modulus, 13-23

Flash point tests, 13-44

Foundations, 1-5 to 1-6

Freeze-thaw test, 13-23, 18-7

French drain, 3-10

G

Geological surveys, 16-1 to 16-3

H

Horizontal curves, 3-3 to 3-4, 11-1 to 11-12

- arc definition, 11-4

Horizontal curves—Continued

- chord definition, 11-5
- curve formulas, 11-6 to 11-7
- layout, 11-10
- terminology, 11-2 to 11-4
- types, 11-2

HVAC systems, 4-4 to 4-1

- air-conditioning systems, 4-7 to 4-10
- drawings, 4-10
- radiant-heating systems, 4-7
- steam-heating systems, 4-6
- water-heatings systems, 4-6

Hydrometer analysis, 13-16 to 13-19

I

Instrument adjustment, 6-2 to 6-9

- level adjustment, 6-3 to 6-5
- minor repairs and replacement, 6-9
- transit adjustment, 6-5 to 6-9

Instrument care, 6-1 to 6-2

L

Land surveyor responsibilities, 10-33

Land surveys, 10-30 to 10-37

- monuments, 10-34
- precision, 10-36
- procedures, 10-34

Laser level, 12-6 to 12-8

Latitude, 15-14 to 15-17

- by altitude of the sun, 15-15

Level computations, 7-4 to 7-7

- adjusting intermediate bench marks elevations, 7-5
- adjusting level nets, 7-6 to 7-7
- calculation allowable error, 7-6

M

Mamgement Division, 14-1 to 14-3

Deployment Completion Report, 14-3

SITREP, 14-2

timekeeping, 14-2

Map projections, 9-10 to 9-23

conformality, 9-20

conic projections, 9-19, 9-22

Mercator projections, 9-11 to 9-19

polyconic projections, 9-21 to 9-22

Mass diagrams, 10-10 to 10-14

cumulative yardage, 10-12

plotting mass diagrams, 10-12

Material estimating, 5-4 to 5-8

bituminous paving, 5-7

checking estimates, 5-5

concrete estimating, 5-7

N

NMCB TOA, 6-9

O

Optimum moisture content, 13-1

P

Pedological surveys, 16-3 to 16-4

Penetration test, 13-44

Piles, 1-7

bearing piles, 1-7

pile location sheet, 10-29

sheet piles, 1-7

Pins, 1-26 to 1-27

Plane-table topography, 9-1 to 9-10

horizontal point location, 9-5 to 9-6

plane-table field notes, 9-7

plane-table orientation, 9-2 to 9-5

Plats, 10-35 to 10-36

Plotting horizontal control, 7-24 to 7-27

coordinate method, 7-26

protractor and scale method, 7-24

tangent method, 7-25 to 7-26

Pour test, 13-41, 13-42

Property boundary description, 10-30 to 10-34

blocks, tracts, and subdivisions, 10-32 to 10-33

metes and bounds, 10-30 to 10-32

plane coordinates, 10-32

R

Rivets, 1-27

Road plan, 3-3

dimensioning, 3-7

Roads, 3-1 to 3-14

road profile, 3-4 to 3-5

sections, 3-7 to 3-10

terminology, 3-2

Route surveys, 10-1 to 10-7

drainage, 10-3 to 10-6

electrical distribution, 10-2 to 10-3

S

Satellite survey systems, 15-23 to 15-24

Doppler systems, 15-23

global systems, 15-23 to 15-24

Sieve analysis, 13-22

Smear test, 13-41

Soil-cement stabilization, 18-5 to 18-7

materials, 18-5

tests, 18-6

Soil classification, 16-11 to 16-14

borderline soils, 16-12, 16-13

coarse-grained soils, 16-11 to 16-13

fine-grained soils, 16-13

organic soils, 16-13

Soil field identification, 16-15 to 16-20

acid test, 16-20

bite (grit) test, 16-20

dry-strength (break) test, 16-17

equipment, 16-16

feel test, 16-20

odor test, 16-19

ribbon test, 16-18

shine test, 16-20

thread (roll) test, 16-18

visual examination, 16-16

wet-shaking test, 16-18 to 16-19

Soil profile, 16-6

Soil stabilization methods, 18-1 to 18-2

additive method, 18-2

mechanical method, 18-2

modification method, 18-2

Soil stabilizers, 18-2 to 18-4

bituminous, 18-3

cement, 18-2

fly ash, 18-3

lime, 18-2

selection, 18-3 to 18-4

Soil surveys, 16-4 to 16-11

information sources, 16-7 to 16-8

objectives, 16-5 to 16-7

procedures, 16-10

sample collection, 16-8 to 16-9

Volubility test, 13-41

Solar time, 15-1

Specific gravity, 13-24 to 13-26, 13-46

Specifications, 5-1 to 5-4

federal specifications, 5-3

manufacturer's specifications, 5-3

NAVFAC specifications, 5-1 to 5-3

organization, 5-3 to 5-4

Specifications—Continued

project specifications, 5-3 to 5-4

Stadia, 8-3 to 8-12

inclined elevations and distances, 8-6

reduction formulas, 8-4 to 8-5

stadia tables, 8-6

transit-stadia field procedures, 8-8 to 8-12

Steel frame structures, 1-19 to 1-24

bridges, 1-22

preengineered buildings, 1-23

towers, 1-23

Structural steel, 1-17 to 1-18

connectors, 1-24 to 1-27

Sun observations, 15-17 to 15-22

declination, 15-18

field procedures, 15-19

Survey parties, 14-8 to 14-9

T

Topographic control, 8-1 to 8-2

locating details, 8-2 to 8-12, 9-1 to 9-2

Topographic maps, 8-12 to 8-24, 9-9

map construction, 8-21

map requirements, 8-23 to 8-24

map scales, 8-20, 8-24

Triangulation, 15-24 to 15-41

base line measurements, 15-33 to 15-34,
15-38

closure, 15-37

point location, 15-39 to 15-41

precision checks, 15-37 to 15-39

procedures, 15-31 to 15-37

signals, 15-30 to 15-31, 15-32

targets, 15-27 to 15-30

towers, 15-31

triangulation networks, 15-25 to 15-27

Training, 14-6, 14-10, 14-12

Traverse computations, 7-7 to 7-14

adjusting angles, 7-8

adjusting bearings and distances, 7-12 to 7-13

adjusting linear error of closure, 7-8 to 7-12

calculating plane coordinates, 7-13 to 7-14

checking and reducing angles and distances, 7-8

closing a traverse, 7-10 to 7-12

latitude and departure, 7-8 to 7-12, 7-14

Trigonometric leveling, 7-2 to 7-4

V

vertical curves, 3-5, 11-12 to 11-20

gradient, 11-12

profile work sheet, 11-20

Stakeout, 11-20

symmetrical, 11-15 to 11-18

terminology, 11-13 to 11-15

unsymmetrical, 11-18 to 11-19

W

Wastewater systems, 2-19 to 2-22

design, 2-21 to 2-22

terminology, 2-20

Waterfront surveys, 10-26 to 10-30

location by chaining, 10-27

location by triangulation, 10-28

pile location sheet, 10-29

Waterfront structures, 1-8 to 1-14

breakwater, 1-8 to 1-9

bulkhead 1-9 to 1-11

groin, 1-9

jetty, 1-8

mole, 1-9

pier, 1-12 to 1-14

seawall, 1-9

Water distribution system, 2-14 to 2-19

drawings, 2-18 to 2-19

groundwater, 2-15

layout, 2-17 to 2-18

selection and development of sources, 2-16

terminology, 2-16 to 2-17

valve and hydrant locations, 2-18

Welding symbols, 1-24, 1-26

Work assignment and schedules, 14-6 to 14-8, 14-9,
14-12

Z

Zone time, 15-1 to 15-2